REMARKS

Claims 1-34 remain in this case and new claims 35-37 have been added. Therefore, after entry of the above amendments, claims 1-37 will be pending in this application. Claims 12, 16, 27, and 31 have been amended to clarify that a wireless communication system is not an element of these claims, but merely an intended use for the claimed apparatus. Accordingly, these amendments are not narrowing amendments made for reasons of patentability. Applicant believes that the present application is now in condition for allowance, which prompt and favorable action is respectfully requested.

Claim Rejections – 35 USC § 102

Claims 1-3, 5-9, 11-13, 15-18, 20, 21, 25, 27 and 31 are rejected under 35 USC § 102(a) as being anticipated by Bjerke *et al.* (US 2003/0103584). This rejection is respectfully traversed.

A. Claims 1-3, 5-9, 11-13, and 15-18

Applicant discloses a novel and unobvious approach for performing data detection for a hierarchical coded data stream. Hierarchical coding is a data transmission technique whereby first and second data streams are superimposed and transmitted simultaneously. In one embodiment disclosed by Applicant, the hierarchical data transmission is recovered as follows. A receiver first recovers the symbols for the first data stream, derives the log-likelihood ratios (LLRs) for first data stream, and decodes the LLRs. The LLRs for the second data stream are then computed by subtracting the estimated interference contributed by the first data stream from the LLRs for the first data stream. Stated more generally, the LLRs for the second data stream are based on *the LLRs for the first data stream* and the estimated interference contributed by the first data stream.

The data detection techniques disclosed by Bjerke is fundamentally different from Applicant's. Bjerke discloses a method for detecting data in a MIMO-OFDM communication system using an iterative process. The MIMO-OFDM communication system includes N_T transmit antennas and N_R receive antennas. At the receiver, a demodulator processes N_R data streams to produce modulation symbols, which are then provided to a detector/decoder. Referring to FIG. 4C in Bjerke, the detector includes N_T detection stages, with each stage being assigned to process and recover data for a particular transmit antenna. An interference nuller

450a in the first stage is used to recover the modulation symbols transmitted from the first antenna. A LLR computer 452a computes the LLRs and then an iterative process is performed between the LLR computer 452a and the decoder 440a to recover decoded data bits transmitted from the first antenna. The LLRs for the second antenna are computed by subtracting the estimated interference from the decoded bits for the first antenna from the received modulation symbols via an interference canceller 460a, providing the result to a second stage interference nuller 450b to recover the modulation symbols transmitted from the second antenna, and computing the LLRs from the output of the second stage interference nuller 450b. In other words, the LLRs for the second antenna are derived based on the *received modulation symbols* and the estimated interference from the decoded bits for the first antenna. This is to be contrasted to Applicant's approach, which *does not* use the *received modulation symbols* to derive the LLRs for the second data stream. Instead, LLRs for the second data stream is based on *the LLRs for the first data stream* as clearly set forth in claim 1 where it is recited:

> "deriving LLRs for code bits of a second data stream based on *the LLRs for the code bits of the first data stream* and the estimated interference."

(emphasis added). Accordingly, Bjerke cannot be said to anticipate claim 1. Claims 12 and 16 contain similar limitations, and therefore, are also patentable over Bjerke.

In view of the foregoing remarks, Applicant respectfully requests that the rejection of claims 1, 12 and 16, and any claims dependent therefrom, be withdrawn.

B. Claims 20, 21, 25, 27 and 31

Claim 20 recites "estimating interference due to the first data stream based on the *data symbol estimates*." (emphasis added). The data symbol estimates are derived from the *received symbols* or the *LLRs for the first data stream*.

Bjerke does not estimate the interference based data symbol estimates based on the received symbols or the LLRs for the first data stream. Instead, the interference estimates are based on remodulated symbols. More specifically, the modulation symbols transmitted from the first antenna are received, the LLRs computed, and the decoded data recovered. The decoded data is then re-encoded and remodulated to produce remodulated symbols. The remodulated symbols are used to estimated the interference from the decoded bits for the first antenna. Accordingly, Bjerke does not teach or suggest using received symbols or the LLRs to estimate

interference, and therefore, cannot support an anticipatory rejection of claim 20. Claims 27 and 31 contain similar limitations, and therefore, are also patentable over Bjerke.

In view of the foregoing remarks, Applicant respectfully requests that the rejection of claims 20, 27, and 31, and any claims dependent therefrom, be withdrawn.

Claim Objections

Claims 4, 10, 14, 19, 22-24, 26, 28-30, and 32-34 have been objected to. The grounds for the objection is not stated in the Office action, but it appears to be related to the dependency of the claims to rejected base claims. Applicant believes that the rejection of the base claims is improper, and therefore, has elected not to address these claims at this time.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated: February 20, 2007

By: /Albert J. Harnois, Jr./
Albert J. Harnois, Jr., Reg. No. 46,123
858.651.4368

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
Telephone: (858) 658-5787
Facsimile: (858) 658-2502